



11-19-04

DFW

PTO/SB/21 (03-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Application Number	10/806,923
Filing Date	March 22, 2004
First Named Inventor	Weimin Li et al.
Art Unit	2812
Examiner Name	Unknown
Attorney Docket Number	MI22-2274

Total Number of Pages in This Submission

**ENCLOSURES (Check all that apply)**

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to a Technology Center (TC)
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Change of Correspondence Address	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	Return Receipt Postcard; Form PTO-1449; Cited References
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Response to Missing Parts/Incomplete Application	Remarks	
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		

EV372470687

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual	Mark S. Matkin, Reg. No. 32,268 Wells St. John, P.S.
--------------------	---

Signature

Date

**CERTIFICATE OF TRANSMISSION/MAILING**I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as express mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 

Typed or printed Jim Tidrick

Signature

Date

11-17-04

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application Serial No. .... 10/806,923  
Filing Date ..... March 22, 2004  
Inventor ..... Weimin Li et al.  
Assignee ..... Micron Technology, Inc.  
Group Art Unit ..... 2812  
Examiner ..... Unknown  
Attorney Docket No. .... MI22-2274  
Customer No. .... 021567  
Title: Methods of Depositing Silicon Dioxide Comprising Layers in the  
Fabrication of Integrated Circuitry, Methods of Forming Trench Isolation,  
and Methods of Forming Arrays of Memory Cells

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

References -- See Attached Form PTO-1449

The attached form PTO-1449 is submitted in compliance with 37 CFR §1.56. Pursuant to 1276 OG 55, August 5, 2003, no copies of cited U.S. patents or U.S. patent application publications are included, as the date of filing of this patent application occurs after June 30, 2003. No admission is made regarding whether all the listed references are prior art.

Respectfully submitted,

Dated: 11-17-04

By:   
Mark S. Matkin  
Reg. No. 32,268

EV372470687

Form PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTORNEY DOCKET NO.  
MI22-2274SERIAL NO.  
10/806,923LIST OF ART CITED BY APPLICANT  
(Use several sheets if necessary)

APPLICANT: Weimin Li et al.

FILING DATE  
March 22, 2004GROUP ART UNIT  
2812

## U.S. PATENT DOCUMENTS

*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	3,990,927	11/1976	Montier			
	AB	4,474,975	10/1984	Clemons et al.			
	AC	5,156,881	10/1992	Okano et al.			
	AD	5,182,221	01/1993	Sato			
	AE	5,410,176	04/1995	Liou et al.			
	AF	5,470,798	11/1995	Ouellet			
	AG	5,719,085	02/1998	Moon et al.			
	AH	5,741,740	04/1998	Jang et al. <sup>1</sup>			
	AJ	5,776,557	07/1998	Okano et al.			

EV372470687

## FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AJ	02277253A	11/1990	Japan (Hayashide et al.)				
	AK	146224	01/1996	Japan				
	AL	06-334031	12/1994	Japan			Abstract	

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

	AM		Beekmann et al., <i>Sub-micron Gap Fill and In-Situ Planarisation using Flowfill™ Technology</i> , Electrotech 1-7
			ULSI Conference, Portland, OR (October 1995).
	AN		Horie et al., <i>Kinetics and Mechanism of the Reactions of O(<sup>2</sup>P) with SiH<sub>4</sub>, CH<sub>3</sub>SiH<sub>3</sub>, (CH<sub>3</sub>)<sub>2</sub>SiH<sub>2</sub>, and</i>
			<i>(CH<sub>3</sub>)<sub>3</sub>SiH</i> , 95 J. PHYS. CHEM 4393-4400 (1991).
	AO		Joshi et al., <i>Plasma Deposited Organosilicon Hydride Network Polymers as Versatile Resists for Entirely Dry</i>
			<i>Mid-Deep UV Photolithography</i> , 1925 SPIE 709-720 (January 1993).
EXAMINER		DATE CONSIDERED	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. MI22-2274	SERIAL NO. 10/806,923
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT: Weimin Li et al.	
		FILING DATE March 22, 2004	GROUP ART UNIT 2812

U.S. PATENT DOCUMENTS							
*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,786,039	07/1998	Brouquet			
	AB	5,801,083	09/1998	Yu et al.			
	AC	5,863,827	01/1999	Joyner			
	AD	5,883,006	03/1999	Iba			
	AE	5,888,880	03/1999	Gardner et al.			
	AF	5,895,253	04/1999	Akram			
	AG	5,904,540	05/1999	Sheng et al.			
	AH	5,930,645	07/1999	Lyons et al.			
	AI	5,943,585	08/1999	May et al.			

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AJ	05-315441	11/1993	Japan			Abstract

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
	AM		Kiermasz et al., <i>Planarisation for Sub-Micron Devices Utilising a New Chemistry</i> , Electrotech 1-2, DUMIC Conference, California (February 1995).
	AN		Kojima et al., <i>Planarization Process Using a Multi-Coating of Spin-on-Glass</i> , V-MIC Conference, pp. 390-396 (June 13-14, 1988).
	AO		Matsuura et al., <i>A Highly Reliable Self-planarizing Low-k Intermetal Dielectric for Sub-quarter Micron Interconnects</i> , 97 IEEE 785-788 (July 1997).
EXAMINER		DATE CONSIDERED	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

Form PTO-1449  U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. MI22-2274	SERIAL NO. 10/806,923
	APPLICANT: Weimin Li et al.	
	FILING DATE March 22, 2004	GROUP ART UNIT 2812

U.S. PATENT DOCUMENTS							
*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,950,094	09/1999	Lin et al.			
	AB	5,960,299	09/1999	Yew et al.			
	AC	5,972,773	10/1999	Liu et al.			
	AD	5,998,280	12/1999	Bergemont et al.			
	AE	6,030,881	02/2000	Papasoulitis et al.			
	AF	6,051,477	04/2000	Nam			
	AG	6,156,674	12/2000	Li et al.			
	AH	6,719,012	4/2004	Doan et al.			
	AI	6,583,028	6/2003	Doan et al.			
	AJ	6,300,219 B1	10/2001	Doan et al.			
	AK	5,570,469	6/1998	Uram et al.			

EV372470687

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
	AM		Matsuura et al., <i>Novel Self-planarizing CVD Oxide for Interlayer Dielectric Applications</i> ; 1994; 94 IEEE 117-120.
	AN		McClatchie et al. <i>Low Dielectric Constant Flowfill™ Technology for IMD Applications</i> , 7 pages (pre-August 1999).
	AO		Withnall et al., <i>Matrix Reactions of Methylsilanes and Oxygen Atoms</i> , 92 J. PHYS. CHEM. 594-602 (1988).
EXAMINER		DATE CONSIDERED	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

Form PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. MI22-2274	SERIAL NO. 10/806,923
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT: Weimin Li et al.	
		FILING DATE March 22, 2004	GROUP 2812

U.S. PATENT DOCUMENTS							
*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,105,253	04/1992	Pollock	357	49	
	AB	5,604,149	02/1997	Paoli et al.	437	67	
	AC	5,616,513	04/1997	Shepard	438	402	
	AD	5,786,263	07/1998	Perera	438	431	
	AE	5,895,255	04/1999	Tsuchiaki	438	427	
	AF	5,923,073	07/1999	Aoki et al.	257	501	
	AG	5,981,354	11/1999	Spikes et al.	438	424	
	AH	5,989,978	11/1999	Peidous	438	436	
	AI	6,033,961	03/2000	Xu et al.	438	295	

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
			E	V			Yes
			3	7			No
			2	4			
			7	0			
			6	8			
			7				
	AL						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
	AM		Curtis et al, "APCVD TEOS: O3 Advanced Trench Isolation Applications", Semiconductor Fabtech, 9 <sup>th</sup> Ed.,
			p. 241 - 247
	AN		George, S.M. et al., "Atomic layer controlled deposition of SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> using ABAB... binary reaction
			sequence chemistry", Applied Surface Science 82/83, Elsevier Science B.V., July 10, 1994, p. 460-467.
	AO		Morishita et al. "Atomic-layer chemical-vapor-deposition of silicon-nitride", Applied Surface Science 112,
			Elsevier Science B.V., 1997, p. 198-204.
EXAMINER		DATE CONSIDERED	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

Form PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. MI22-2274	SERIAL NO. 10/806,923
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT: Weimin Li et al.	
		FILING DATE March 22, 2004	GROUP 2812

U.S. PATENT DOCUMENTS							
*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	6,090,675	07/2000	Lee et al.	438	301	
	AB	6,171,962	01/2001	Karlsson et al.	438	692	
	AC	6,187,651	02/2001	Oh	438	435	
	AD	6,191,002	02/2001	Koyanagi	438	431	
	AE	6,326,282	12/2001	Park et al.	438	424	
	AF	6,329,266	11/2001	Hwang et al.	438	424	
	AG	6,355,966	03/2002	Trivedi	257	499	
	AH	6,583,060	06/2003	Trivedi	438	700	
	AI						

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AJ			EV372470687			

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
	AK		Yokoyama et al. "Atomic layer controlled deposition of silicon nitride and in situ growth observation by infrared reflection absorption spectroscopy", Applied Surface Science 112, Elsevier Science B.V., 1997, p. 75-81.
	AL		Gasser et al., "Quasi-monolayer deposition of silicon dioxide", Elsevier Science S.A., 1994, p. 213-218.
	AM		Hausmann et al., "Catalytic vapor deposition of highly conformal silica nanolaminates", Department of Chemistry and Chemical Biology, Harvard University, May 14, 2002, pp. 1-13.
	AN		Shareef et al., "Subatmospheric chemical vapor deposition ozone/TEOS process for SiO <sub>2</sub> trench filling", J. Vac. Sci. Technol. B 13(4), Jul/Aug 1995, p. 1888-1892.
EXAMINER		DATE CONSIDERED	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

Form PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. MI22-2274	SERIAL NO. 10/806,923
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT: Weimin Li et al.	
		FILING DATE March 22, 2004	GROUP 2812

U.S. PATENT DOCUMENTS							
*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	6,448,150	09/2002	Tsai et al.	438	427	
	AB	6,617,251	09/2003	Kamath et al.	438	691	
	AC	2001/0006255 A1	07/2001	Kwon et al.	257	751	
	AD	2001/0006839 A1	07/2001	Yeo	438	435	
	AE	2001/0046753 A1	11/2001	Gonzalez et al.	438	424	
	AF	2002/0004284 A1	01/2002	Chen	438	427	
	AG	2004/0082181	04/2004	Doan et al.			
	AH	10/931,524		Sandhu			08/31/2004

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AI						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
	AJ		Disclosed Anonymous 32246, "Substrate Contact with Closed Bottom Trenches", Research Disclosure, Feb. 1991, 1 page.
	AK		Hausmann et al., <i>Rapid Vapor Deposition of Highly Conformal Silica Nanolaminates</i> , 298 SCIENCE 402-406 (October 11, 2002)
	AL		Miller et al., <i>Self-limiting chemical vapor deposition of an ultra-thin silicon oxide film using tri-(tert-butoxy) Silanol</i> , 397 THIN SOLID FILMS 78-82 (2001).
	AM		Klaus et al., <i>Atomic Layer Deposition of SiO<sub>2</sub> Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions</i> , 6 SURFACE REVIEW AND LETTERS, Nos. 3 and 4, pp. 435-448 (1999).
EXAMINER		DATE CONSIDERED	
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>			